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THE PROBLEMS OF INTER-ISLAND TRANSPORT

by: A.D. COUPER*

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PREFACE

As part of the response to the General Assembly's resolution 43/189, UNCTAD commissioned Mr. A.D. Couper, Consultant, to prepare a survey of the problems of inter-island transportation, including a comparative assessment of the particular issues pertinent to the Pacific, Caribbean and Indian Ocean Regions.

The Consultant carried out this task from 3 January to 28 February 1990. During the compilation of data he visited Geneva (Switzerland), Port of Spain (Trinidad and Tobago); Suva (Fiji); Auckland and Wellington (New Zealand); Manila (Philippines); and Bangkok (Thailand). He also sent a series of questionnaires and requests for data to a number of persons and organizations in island states and received satisfactory level of response. The organizations concerned are listed in the Appendix to this Report.

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I. Introduction

1. There is no doubt that during the 19th century many islands enjoyed what would now be regarded as good interisland shipping services. As late as the early 1970's the outer islands of most archipelagos received adequate, if somewhat ad hoc, calls by numerous types of vessels. These ranged from small wooden craft built locally, to steel hulled ships of 300 - 500 DWT which had been made redundant from the coastal trades of Europe.

2. The inter island shipping of the 1970's was, however, already in a process of decline in many island territories. This deterioration was reflected in rising ship accidents, inadequate safety provisions, lack of facilities to carry fresh produce and livestock resulting from agricultural and fishery diversification projects, and passenger accommodation which was increasingly regarded as unacceptable by island people. Small shipowning companies were finding costs of crew, repairs and fuel increasing, capital costs of replacing ships from overseas soaring, losses of higher paying passengers to new air services, and more stringent safety legislation. They would tend to overload with cargo when the opportunity presented itself, employ low cost undertrained crews, and push vessels along at night in dangerous waters with few shore navigational aids. Investment in shipping was thus discouraged and the deteriorating ship conditions led to even more losses and a further lack of incentive towards investment.

3. All inter island vessels carried consumer goods outwards from port towns and returned with copra, and, from the nearer islands, bananas and fresh produce. They transported passengers in both directions. Generally there were no barriers to entry to a route and when a boat could be procured services were introduced where they would appear to be most profitable. When copra prices were high outer islands received many vessels, and when low they were avoided. Freight rates were freely negotiated and competition often intense between vessels.

4. While most shipping was conducted by private companies some outer islands services were carried out by non-profit-making government vessels, mission craft, co-operative or provincial councils ships. At other remote places there were freight subsidies. In virtually every case, however, island people paid up to 20 per cent more for consumer goods than people in the port towns, and they received less for their products.

5. The small islands were all probably much more sensitive in production for the market to the frequency and reliability of shipping calls than to high freights or price differentials, although there were always sources of complaint. When the reliability of shipping services began to seriously decline economic depression set in quickly. It was, for example, observed in Papua-New Guinea "...the fall off in production has in many cases been nothing short of remarkable, reflecting the very high correlation between production and regularity of marketing opportunity" (Proctor, 1980, p.162)

6. The situation for many outer islands became critical by the mid-1970's. There were numerous studies carried out at this time and projects proposed. Some of these were implemented, but this was also a period when governments and Aid Agencies became very preoccupied with the rapid technological changes in deep sea shipping and ports as the pressures for containerisation spread. The small scale domestic sector was virtually forgotten.

7. Small shipping companies, captain-owners, and community vessels continued to deteriorate. Island societies suffered, and the situation was made worse in the many islands which were virtually monocultural in copra production when the world price of copra fell from US$733 in 1979 to US$143 in 1986. Small shipping companies went out of business, and the bigger merchant houses withdrew from island shipping and trade. Copra, cocoa and coffee stabilisation funds helped to maintain island purchasing power for a time, as did remittances from islanders working elsewhere, but by the late 1980's a very large number of small island communities were more economically and socially disadvantaged than at any time in their modern history.

8. There are several exceptions to the above scenarios, which are referred to in the regional sections of this report. Often these exceptions are merely matters of timing. For most peripheral islands the decline has been pervasive. People have begun to resent this neglect. For them the sea routes, jetties, and ships correspond to the roads and paths supplied by governments in areas of continuous land. There is no way that the cash sectors of their agriculture, fishing, small scale manufacturing or tourism can advance without reliable sea transport.

9. These reductions in the quantity and quality of sea transport have thus taken place at a time when people aspire to more diversity in the economic, cultural and educational aspects of island living. It should be emphasised in this respect that as well as carrying cargoes, a ship provides many services. It may distribute medical aid, move road graders between areas, and carry secondary school children to and from the towns. It facilitates visits and ceremonial occasions and transmits information. 'Boat days' are important in reducing feelings of isolation, and island production is geared to ship schedules. Ships can also serve political goals. In outer areas there may be minority people. Archipelagic states have to be knit together as nation states by these domestic sea lanes of communication.

10. There is no doubt about the increasing importance and diversity in the roles of local shipping during recent times. For many places this has been accompanied by economic difficulties in providing sea transport to remote societies. The basic problem lies in the thousands of small islands which lie at great distances from markets, and which produce only one, or a limited range, of low value products in small quantities - but which need a considerable range of relatively high cost consumer goods and services for their day-to-day living.

11. This report provides a brief perspective to these problems in relation to the island states of the Caribbean, Pacific, South-East Asia and the Indian Ocean, plus some reference to individual remote islands elsewhere. The report is divided into regional descriptions, accompanied by conclusions and recommendations as a basis for discussion. It concludes with a brief reference to the problems and place of air transport in island communities.

II. Summary of conclusions and recommendations

12. This chapter provides a summary of several conclusions and a list of recommendations which are detailed in their proper context within the regional chapters of the report. These recommendations may provide the basis for discussion regarding forms of assistance to developing island countries and the sea transport systems which service them.

11. The summary covers:

(a) matters which apply generally to many developing island states in their transport requirements.
(b) matters which relate specifically to each region, or to island groups within regions.

Generally applicable to island states

1. Trends in shipping services

(a) An initial conclusion is that, over the past decade new spatial patterns of container shipping have consolidated into the sequences of large ships concentrating on pivot ports, and feeder vessels radiating from pivot ports in wide ranging regional services. It is now necessary for suitable inter island domestic ships to interlink with feeders, but in some places it is also likely that some main inter island services may give way to regional feeders which can serve outer island ports. There are prospects for cost savings in shipping by regional rationalisation in these respects.

2. Integration of Aid to island shipping

(a) The integration and coordination of deep sea ships, feeders, and the inter island services which are coming about requires also the coordination and harmonisation of technical and financial assistance. In the immediate past more than one Donor has provided a ship, or equipment, to the same island territory. In the new situation it would be very useful if Donors could agree on ship types for the same territories, by, for example, the provision of a suitable multi-purpose vessel to complement a feeder service; the provision of similar engines for ships to minimise spare holdings, and reduce repair and recurrent costs; and in the provision of related port and ship board cargo gear; and so on. It would be useful also to harmonise these, and the timing and extent of ship assistance, in the light of regional requirements.

(b) It would be of value if in providing assistance some financial measures to meet recurrent costs were also considered.

(c) There is a role for modern sail assisted vessels in several places. The reductions in fuel costs from the time this was initially considered has been a partial cause of losing sight of the advantages of auxilliary sails. This could usefully be reviewed and revived.

(d) There is an urgent need for ship replacements in most regions. Ship financing loans by Donor Organisations could probably be more effective if the loans were implemented by National Banks, so that shipowners could utilize these over a long period when and where ships became available on the market.

(e) In the remoter islands dual purpose fishing and transport vessels could be considered more widely.

3. Policy

20. More attention could be given to assistance in policy-making regarding the deregulation of national domestic shipping vis-a-vis possible regional integration with new potentials for the wider use of regional feeder vessels.

4. Data

21. There are considerable requirements to improve accuracy of ship and cargo data acquisition, and the storage and retrieval of data by computer on a national and regional basis to assist in policy making, amongst other things.

5. Safety

(a) Most places still have requirements for inter-island improvements in navigational aids, and their maintenance.

(b) There is a continued requirement for regional harmonisation of regulations.

(c) There is a need for regional wide Port State Control.

(d) Many small vessels require to be fitted with safety equipment.

6. Ports

22. Several island main ports are congested and the inter-island shipping sector is often relegated to the most difficult areas. Assistance is needed for inter-island berths.

7. Training

(a) Training in the proper use of sail with engines is needed.

(b) Short courses for ship owners on commercial procedures is needed in the small ship sector.

(c) Short courses in new commercial areas, such as slot chartering and feeder through-transport, would be useful for the bigger enterprises.

(d) There is a need to train more ship safety surveyors suitable for small vessel surveys.

(e) There is a need for assisting inter-island shipping to obtain adequately trained personnel in the face of increasing competition from recruitment agencies aimed at supplying ships owned overseas. The situation is in need of survey.

(f) A useful form of almost immediate assistance would be the compilation and publication of a manual on "The Operation and Management of Small Ships", specifically for the inter-island sector.

8. Air

23. There appears to be a need to assess air/sea relationships in inter-island linkages, with a view to the right integration of tasks and modal split, and the use of suitable aircraft on a wider inter-territorial basis.

A. The Caribbean

24. In addition to the generally applicable proposals, the Caribbean requirements include:

1. Ships

(a) The small ship sector, both steel hulled and wooden schooners, is in need of assistance for: Replacement finance for suitable vessels. Life saving equipment.

(b) The integration of cargo ship and tourist services may be usefully surveyed.

2. Policy

(a) A principal problem is overtonnaging. This is difficult to control due to the complexities of shipping and trade in the region. Assistance in the organisation and strengthening of the Shipowners' Associations and Shippers' Councils would help in making self-regulation a possibility on a regional basis.

(b) There is a need to assess the relationships of agents with respect to cargo allocation, and of finding ways of improving this.

3. Safety

25. There is a requirement for the gradual application of safety regulation to their full extent in the interests of passengers and crew. This may also eliminate the worst of the vessels and reduce overtonnaging. These measures require more small ship surveyors.

4. Ports

26. There are requirements for improvements in the packaging, land transport and storage of fresh produce in several islands for onward sea transport.

Note: No specific reference is made to WISCO in this summary as the regional line is the subject of a special survey by UNCTAD. (See Chapter 3).

B. The Pacific Islands

27. In addition to the generally applicable proposals the Pacific Island requirements include:

(a) A particular need exists for Donor co-ordination in this region with respect to ship types, equipment, dimensions and shore facilities, so that there can be more harmonisation of inter-territorial trunk line ships, feeders, and island ship distributions.

(b) The small remote islands which are very peripheral to their groups, or are individually isolated, may need a dedicated inter-territorial service using one (or more) small multi-purpose vessels with auxiliary sails. This option may be worth further investigation.

(c) For the bigger groups, schemes for closing the gaps in the land and sea transport arrangements could now, with the use of modern Ro-ro and barges etc, usefully be approached from an 'integrated transport' point of view.

(d) Assistance in the establishment of national Task Forces to review, locally consult, adapt, implement and monitor already available studies and recommendations is particularly needed in the Pacific.

(e) Assistance to re-establish private enterprise shipping to outer islands is required, based possibly on a system of franchising of routes to ensure better quality ships and prevent overtonnaging.

(f) With the decline in copra demand (which may not now be cyclical) there is a need for the small islands to diversify to higher value products such as spices, ginger, fowls, etc. and to market maricultural products. Air services may better serve the marketing of some of these, but has to be integrated with shipping.

(g) Attention is drawn to the availability of the South Pacific Maritime Development Plan, Forum Secretariat, Suva 1989; this gives a listing of priorities as analysed by the SPF.

C. Islands of South East Asia

28. In addition to the generally applicable proposals, South East Asia island territories' requirements include:

1. Ships

(a) Finance for ship replacement is a requirement. To facilitate the proper timing of acquisition, and coincide with availability by type of ship, it would be useful if any loan assistance could be made available for borrowing over a long period - possibly implemented by National Banks.

(b) Assistance is required for the provisions of greater safety on small vessels.

2. Policy

(a) There are major revisions in regulatory policies in shipping and ports taking place in SE Asia in response to technological and other changes. A comparative evaluation of these would assist all island states in future policy making.

3. Ports

(a) There is a major requirement for improvements at Manila, in particular; and also for container handling facilities in the Indonesian small outer ports.

4. Data

(a) Data is inaccurate for measuring the role and activities of the small scale sector, in particular. This needs to be updated and computerised.

5. Safety

(a) The aggregated lengths of coastline in archipelagic regions means an exceptionally high requirement for navigational aids. Attention is needed in this area.

(b) There is a major requirement for implementing safety regulations.

6. Training

(a) The drain by overseas companies of qualified officers from the Philippines in particular has led to periodic acute shortages in the domestic trades. Special training, and possibly new contractual arrangements, are required, for which evaluation assistance is needed.

D. Indian Ocean and Atlantic Islands

1. Ships

(a) Further assistance in the improvements of safety within the traditional small scale vessels serving the Maldive Islands is considered helpful.

(b) The Maldive experience reinforces the conclusion that in the very small scale sector operated by villages it is advisable to improve on what is there already rather than introduce entirely new concepts and technology.

III. The islands of the Pacific

29. The islands of the Caribbean present complex situations in shipping, trade and development. The range of shipping services extend from highly sophisticated vessels and computer-controlled procedures to very poor, virtually unseaworthy craft engaged in local passenger-carrying and on-the-beach trading.

30. Functionally, the types of shipping services in the Caribbean may be categorised as:

(a) Deep Sea
(b) Short-Sea, and
(c) Inter-Island

31. These categories are not mutually exclusive. There are overlaps, especially between (i) and (ii) and between (ii) and (iii); and there are close operational relationships between types and sizes of ships - some acting as feeders to others.

32. This chapter outlines the general features of the island trades; the basic aspects of the three categories of shipping; the main shipping problems and implications for island developments; and some possible measures which may lead to improvements.

General Features

33. An important feature of the Caribbean is proximity to the USA and the Panama Canal. This locational value alone ensures considerable shipping opportunities.

34. The islands are independent, with the exception of several with politico-economic relationships with the United States, France and the Netherlands. This also influences shipping services and patterns of trade.

35. The islands tend to produce similar commodities - sugar, bananas, fruit, vegetables, coffee and tobacco, they compete for tourists and for outside investments in new industries such as electrical goods assembly and garment-making. There are geographically limited oil production areas, but generally there is still a lack of complementarity which could generate large-scale intra-Caribbean trade.

36. Imports to the Caribbean islands come from a limited number of foreign ports but have to be very widely distributed around the islands. There is less volume of exports from the islands and these are of lower value. Imports of general cargo amount to about 6 m. tonnes, while exports are around 4 m. There are seasonal peaks in both imports and exports.

Deep Sea Shipping

37. About 100 liner and bulk companies serve the Caribbean. Every major island port receives liner shipping and the majority of calls involve containers. Several companies concentrate at the pivot ports in Puerto Rico, Curacao, Jamaica and Barbados. Other lines focus on St. Kitts, St. Lucia and Port of Spain. Several liner operators employ feeder vessels - Evergreen round-the-world service, for example, concentrated until recently, at Kingston Jamaica and had feeders to Aruba, Costa Rica, Curacao, Dominican Republic and Panama. Geest Line from the UK has transhipments by the USA Tropical Shipping Company (TSC) from St. Thomas and St. Lucia to other islands. Geest in turn carries TSC cargo (unloaded from the USA) from St. Lucia to islands on Geest routes.

Short Sea Shipping

38. About half of the general cargo which is distributed in the Caribbean islands originates in the southern US ports of Jacksonville, Palm Beach, Port Everglades and the small wharfs along the Miami River.

39. There are about 30 US lines operating regularly on this trade. The ships vary from 1000 TEU LoLos to small 24 TEU vessels. There are many types of Roros; and also massive triple deck barges carrying trailers; as well as multi-purpose vessels.

40. The ships out of US ports run highly competitive tight schedules managed by commercially aggressive operators. In the Miami River they may be loaded by low cost non-union labour; the ships are self sustaining, captains do some of their own port pilotage, and vessels can manoeuvre in overcrowded harbours (often congested by pleasure craft). Many ports are covered during round voyages from the US. A Bernuth Line ship does 18 ports in 18 days, another company with a big 6000 DWT ship will work 9 ports in 6 days.

41. Amongst the competitors in the short sea trade is the West Indies Shipping Corporation (WISCO). This is owned by island government shareholders - with 40% Trinidad and Tobago, 30% Jamaica and the balance in various proportions by ten other island states.

42. WISCO normally operates four cellular container ships, two owned and two chartered. These make calls at Miami, Jamaica, St. Kitts, Antigua, Montserrat, Dominica, St. Lucia, Barbados, St. Vincent, Grenada, Trinidad and Guyana; and also provide a linkage with transhipments from and to the national shipping corporation of Trinidad & Tobago (Scott) which operates to New York.

43. In addition to liners there are small schedule bulk carriers and irregular tramps in short sea operations. These carry timber, cement and grain. Overall, there is considerable overtonnaging, although there are enclaves of small islands that receive few calls.

Inter Island Shipping

44. The movement of cargoes between the Caribbean islands, is, in fact, conducted by virtually every category of vessel. Deep sea ships while repositioning containers will often provide very low rated space for inter island cargo movements. A large vessel coming from Europe to, for example, Port of Spain, will after discharging offer cargo space to its next island port of call. Short sea shipping will regularly tranship cargoes from deep sea vessels to other islands. These overlapping activities create a very difficult trading environment for the 400 to 500 small vessels engaged almost exclusively in inter island trading, and also for the regional line WISCO which has a high level of contractual obligations to provide cargo links between islands on a regular basis at low rates.

45. The vessels which are dedicated primarily to inter island and island coastal services fall into two general categories. There is a range of steel hulled ships of around 200 - 300 DWT which are mainly old coasters and river craft (and even old fishing trawlers) from Europe. Many of these are operated by a captain/owner and a crew of about six. They are usually out-of-class, and they would not meet any of the normally accepted standards of seaworthiness.

46. In the highly competitive conditions of the inter island trade all these small vessels work on low freight rates and often spend many weeks idle during the year. They depend for their cargoes on agents. The agencies working on

commission compete amongst shippers for business by offering to secure the lowest possible rates. Consequently, a small vessel which is expecting to receive, and is ready to load a cargo, may find that the load fails to materialise as the agent has at the last minute obtained a lower rate, or has secured 'opportunity' space at only a little above loading and unloading costs on board a deep sea ship bound for the destination.

47. The second major category of inter island vessels are the schooners. They range from about 30 - 60 tonnes and are wooden hulled sailing craft, now fitted with auxiliary engines. They carry few, if any, items of safety equipment and are generally old and in poor condition.

48. Some schooners are on regular trades. Many arrive at Port of Spain on Tuesday evening and sail on Thursday night. They carry fruit and vegetables inwards and consumer goods outwards. The traders are often women who travel with the vessels. They purchase produce in the islands and sell them at the Caricom wharf at Port of Spain. Schooners also cover a wide range of islands and help to balance surpluses and shortfalls in food production.

49. Both the steel hulled coasters and schooners carry some transhipments. Vessels under sail will, for example, bring goods discharged from overseas ships from St. Kitts to Navis. Both types of ships also carry passengers. These may be designated as "crew" in order to satisfy a cursory enquiry by island marine authorities. Remarkably, major accidents are relatively few in both categories of vessels. The captain/owners watch the weather and the distances are short between islands.

Conclusions and recommendations

50. In terms of deep sea shipping the main Caribbean islands ports are well served, and cargoes find adequate onward movement to many smaller ports.

51. Despite the fact there is intense competition under severe overtonnaging the real transport costs for island communities in the regional and inter island trades are not low. Port charges are relatively high in the islands, where labour has wage rates above those at the non-union wharfs at Miami, and only one port is available at each island. Alternative ports are, however, developing in the bigger territories such as Port Lisas in Trinidad.

52. There are also problems of inadequate inland carriage and port storage facilities for fresh produce in most small islands, leading to high levels of losses of fruit and vegetables, the costs of which are borne by the island producers. Only in the Geest Line operations to main islands do farmers, trained by the company, pack bananas for export in their producing areas. Many of the small vessels that tranship and carry fruit are not suitable for the stowage of fresh produce and few provide opportunities for the carriage of livestock.

53. In the short sea trade overtonnaging has adversely affected the commercial viability of WISCO. This regional line has obligations to serve many islands and in its almost 30 years of existence has probably never made a profit. The situation of WISCO is currently the subject of a special economic analysis with the help of UNCTAD.

54. It is the very small scale inter island sector which presents the most difficult problems. Produce is lost waiting for shipment, but also deteriorates in poorly ventilated holds enroute. The ships are badly maintained and there is a general trend towards mass obsolescence of this fleet.

55. The crux of the problem lies in overtonnaging and the system of agent allocation of cargoes. Some small companies and captain/owners are also lacking in commercial knowledge, and fail to appreciate terms such as fio. They will, for example, accept the deduction from their ship earnings of cargo handling charges which have also been billed to the consignee. Complaints by island receivers of cargo against small shipping companies have similarly brought to light cif bills which charge consignees as much as $80 for freight, whereas the vessel has received only $18 for the actual carriage. Islands do not, therefore, always benefit from apparent low rates.

56. Low rates as earnings for ships also mean the inability of small scale owners to maintain their craft. Island marine authorities are nevertheless under obligations to apply minimum standards of safety. The immediate implementation of these standards would finally put many vessels out of business. This would create grave problems for many islands, especially the remoter and poorer areas of the groups, such as the Grenadines and other scattered small places which depend on these vessels.

57. Possible solutions to some of the problems in the Caribbean Islands could include:

(a) a policy of improved rationality of the agency system to ensure more inter island cargoes go to inter island vessels.

(b) assistance in the improvement of ship conditions to facilitate the safe carriage of fresh produce and provide proper opportunities for the movement of livestock.

(c) the gradual enforcement of safety regulations, and passenger conditions of carriage and comfort, which may also have the effect of driving out the worst of the vessels and reducing overtonnaging.

(d) the offering of short training courses to small companies and captains in commercial practices and operations.

(e) improvements in ship finance arrangements to ensure there are timely and appropriate replacements in the inter island sector, together with the provision of related training. These measures, along with assistance in island land transport, packaging, and storage at small ports, are considered to be feasible and necessary means of improvements.

58. What is much more difficult than the infrastructural and training improvements in the small scale sector are the institutional aspects relating to the system as a whole. There is in the Caribbean a superficial appearance of rationality with overseas vessels, short sea and inter island craft playing appropriate roles. However, apart from discrete arrangements between main line and feeder services under the control of individual companies something bordering on commercial chaos actually seems to exist. This is reflected in overtonnaging, inadequate rates, losses of produce, cross haulage and duplication of functions. Island communities do not benefit from this. It would not appear practical, however, to propose centralised regulation with governments controlling freight rates and licensing routes. There are too many diverse parties involved and numerous nation states. The best that would seem to be attainable to realise the potential rationality of new technology by regulatory means are:

(f) assistance in strengthening Shipowners' Association and Shippers' Councils

(g) the collection of proper regional statistics on vessels, routes and cargoes

(h) the continued regional harmonization of maritime regulations

(i) assistance with the development and implementation of Port State Control.

In the longer term these measures may lead to improved self regulation, and higher standards of shipping to the benefit of the islands.

IV. The Pacific Islands

59. The island world of the Pacific covers a vast area. The regions may be divided ethnically and partly geographically from east to west, into Polynesia, Melanesia and Micronesia. The islands fall into the broad categories of the low coral, high oceanic and high continental. The latter lie west of the Andesite Line (Fiji, Solomons, Papua-New Guinea, etc.) and are characterised by a diversity of mineral composition compared with the more homogeneous corals of the low islands and basalts of the high oceanic islands.

60. The islands territories to the east of the Andesite Line are typically micro-states, with small populations and great vulnerability to changing natural, economic and political circumstances. Most states are extremely fragmented with hundreds, and sometimes thousands, of miles between their administrative/commercial centres and their peripheral islands. The bigger continental islands also have peripheral areas which are small and remote and share many of the disabilities of the oceanic groups.

61. The island groups lie between the American continent, Asia and Australasia. In effect, between some very fast-growing centres of the world economy. The cross-Pacific trade which is generated by the enormous Pacific rim countries has little impact on the small islands. At one time it did, with ships which crossed the Pacific calling at the islands for fuel, stores and way-port cargoes. Nowadays, most of the container ships on the cross Pacific trade far exceed the dimensions and technical requirements which could be handled at island ports. These vessels, of around 3000 TEU capacity, focus on a few pivot ports in Asia and at load centres with onward land-bridge connections in North America. There is a high concentration of capital into the consortia which operate transpacific lines. The ships by-pass everywhere without large local cargo volumes, or networks of sea feeder and other transport connections.

62. The ships that now serve the Pacific islands include some smaller sized self sustaining container liners which call at specific places. There are also regionally based liner shipping companies which have trunk routes covering widely separated island main ports. The collection and distributional tasks amongst the island groups are in turn undertaken by a variety of feeder and small inter island craft. In addition there are periodic calls at island centres for the loading of bulk cargoes by overseas ships.

Deep Sea Shipping

63. Although there has been a decline in 'way port' calls by the larger cross Pacific container ships there are still liner companies from Europe, North America and Asia trading regularly to major island ports. All of the main ports can handle containers once they are landed, but only in French Polynesia and Noumea are there cranes for lifting containers on and off ships.

64. About three million tonnes of general cargo comes on deep sea container ships. Much of this goes to Papua-New Guinea and Fiji. In addition, specialised shipments and general cargo is unloaded in French Polynesia, American Samoe and Guam from France and the USA respectively. For the smaller independent islands of W.Samoa, Tonga, Tokelau, Niue, Kiribati and Tuvalu in particular, there are only small tonnages imported. Exports to overseas destinations from the Pacific islands comprise less than one million tonnes of general cargo (including fresh produce, cocoa, coffee, 28 palm oil, coconut oil, as well as garments and assembled commodities). These are back loaded by liner shipping.

65. The greatest tonnage of exports from the Pacific comprise bulk cargoes handled mainly by chartered ships. These cargoes consist of minerals (Papua-New Guinea, New Caledonia and the Solomon Islands), phosphates (Nauru), Sugar (Fiji) and timber (Papua-New Guinea). Over half of the tonnage of bulk exports originates in Papua-New Guinea.

66. From the small outer islands only copra, and a limited amount of coconut oil and fruit, is exported. The copra cargoes are collected by the ships of the Bank Line and Columbus Line, and by chartered vessels. This is necessary as these cargoes at times of low prices could not bear the costs of double handling and transhipment.

67. There is thus a marked imbalance between high value imports and low value exports in all small island territories. Container ship calls are therefore for the delivery of consumer goods and other general cargo. There are few containerised exports. The imports come from SE Asia, Japan, New Zealand and Australia. In addition, the USA and France have regular shipments to politically related islands; and there are a few, but reducing number of direct calls from other ports in Western Europe.

68. The principal deep sea carriers include the China Navigation Co. and Mitsui from Japan and SE Asia to Papua-New Guinea and Fiji; Bank Line and Columbus Line operating joint liner services from S E Asia to Papua-New Guinea, with links to their Europe-Pacific trades; Columbus Line and Ned Lloyd from and to the islands via Panama and the Caribbean; Nuigini Line of San Franciso from 29 USA to Townsville, Port Moresby, Lae, Rabaul and Kieta; Blue Star Line North America to Fiji, Papeete, Pago Pago, Tonga and New Zealand; and Campagnie General Maritime from Europe to French Polynesia and Noumea; and the USA and Japan services by PM & Q Lines to the Federated States of Micronesia, to name a few of the lines which operate to a limited range of Pacific Island main ports.

Trunk Line Regional Services

69. Within the confines of the Pacific Basin there are a number of regional services. These make the rounds of island main and secondary ports. Other ports and small islands receive transhipments, sometimes irregularly, from the trunk line services by feeder ships and inter island vessels.

70. Many of the trunk line services focus on Auckland New Zealand, and carry, amongst other cargoes, transhipments from overseas container ships originating in Europe, Asia and Australia. Services to Papua-New Guinea and the western Melanesian islands come also from Australia as well as New Zealand.

71. The most comprehensive of the trunk line services in the S W Pacific is by the Pacific Forum Line (PFL). This is a line founded jointly by governments in the region which began operations in 1978. It has the specific aims of providing viable, regular, regional shipping links for the purpose of stimulating regional development and containing freight rates. There were ten initial shareholders, namely the governments of the Cook Islands, Fiji, Nauru, Papua-New Guinea, Solomons, New Zealand, Kiribati, Tonga, Tuvalu and W. Samoa; these have been joined more recently by the Marshall Islands as one of the joint shareholders.

72. In 1989 the PFL operated three self sustaining container ships on the following routes:-

(a) rotation 21 days - Auckland - Lautoka - Apia - Nuku'alofa (with transhipments to Rarotonga).

(b) 4-weekly feeder service - Auckland - Suva - Funafuti - Tarawa - Majuro

(c) rotation 26 days - Brisbane - Sydney - Lautoka - Suva - Apia - Pago Pago - Nuku'alofa - Rarotonga

(d) rotation 32 days - Lyttleton - Napier - Auckland - Brisbane - Port Moresby - Lau - Honiara - Brisbane

73. Another important regional service is by Sofrana Unilines. This is long established private enterprise company which covers the routes:

(a) New Zealand - Papua-New Guinea - Solomon Islands

(b) " " - Noumea - Pago Pago - Apia - Nukualofa

(c) " " - Norfolk Island

(d) " " - Fiji

(e) " " - Tahiti - Cook Islands

Other services include:

Warner Pacific Line	Auckland - Nulu'alofa - Apia - Pago Pago
John Barke Co.	(i) Brisbane - Port Moresby - Lae - Townsville - Brisbane - Sydney
	(ii) Brisbane - Papua-New Guinea - Singapore
Karlander	Australia - Papua-New Guinea

Periodic services by the Cook Islands National Line:

Auckland - Rarotonga - Pago Pago

And a new attempt by the US Pacific Maritime Line:

Hawaii - Samoa (E.&W.) - Tonga - Cook Islands

These, and several other lines, compete for general cargo deliveries to the Pacific Islands in their regional schedules.

74. There is overtonnaging to some main ports in the Pacific and at the same time a lack of services to peripheral islands. Some rationalising has taken place by arrangement between the principal lines operating to Papua-New Guinea including PFL and Sofrana. Places which suffer neglect at various times include Nuie, Tokelau, Northern Cook Islands, Northern Tonga, the distant island groups of Kiribati, and the outer islands of several archipelagos.

Feeder and Inter Island Shipping

75. One of the difficult regions to serve is Micronesia. This comprises hundreds of very widely scattered small islands. Many were within the previous American Trust Territories, and some places still receive the subsidised carriage of US importers. They form now the Federated States of Micronesia and have to be knit together politically and economically, but the inter island links are costly and lack integration.

76. Kiribati (a former British colony) is also a particularly problematic state in Micronesia in its transport needs. It contains some 70,000 people of which nearly 40% live in the centre, Tarawa. The country comprises 33 principal islands (plus many very small ones) distributed in three archipelagic groups. The extreme distance between islands from East to West is nearly 2000 miles. Imports amount to about 35,000 tonnes of general cargo and fuel per annum (from Australia, Fiji and New Zealand), and exports of copra 4000 to 5000 tonnes p.a. Imports are paid for mainly by remittances (including those from seamen serving on foreign ships) and income from leasing EEZ fishing rights to foreign fishing states. Kiribati has an adverse and deteriorating balance of payments.

77. Cargoes from Suva to Kiribati (including Fiji agricultural produce and manufactured goods) are delivered by the PFL feeder vessel "Forum Micronesia", which calls at Funafuti in Tuvalu, then Tarawa, and on to Majuro in the Marshall Islands. New Zealand has assisted this service by subsidy.

78. The tasks of delivering cargoes within the island groups of Kiribati are difficult due to the old and poor condition of the main inter island ship. There is an urgent requirement for a properly designed vessel for conducting the long sea voyages between these islands. This is a case for reappraising available technology - including simple robust engines, multi-purpose cargo and passenger facilities, and sail assistance.

79. The Tuvalu group has recently received a new vessel to conduct inter island trade, and also to make periodic voyages to Suva. There are doubts regarding the design of this particular vessel for future inter island conditions and tasks.

80. Other small islands in the Cooks, Tonga, Tokelaus, and the remote islands and peripheral groups in other places, suffer long periods of isolation without ship calls. Normally ships service an island when there is a demand to replace consumer goods in the village shops. When copra prices are low demand diminishes. The people of Niaufoou in the Tongan group, for example, virtually ran out of money during a period in 1988 and the government had to purchase their stored copra so that consumer goods could be replaced. In the case of the Northern Cook Islands there was simply no ship available for many months. Only the commercial centre Avarua/Rarotonga, and nearer islands had somewhat regular calls.

81. Fiji illustrates this common problem of the dichotomy between centre and periphery. The port of Suva is growing in its activities, including transhipments by feeder vessels to other Pacific territories. These services have helped stimulate local production in Fiji for a wider market, including outputs of cement, garments and beer.

82. Another thriving sector of shipping in Fiji is the RoRo services. These concentrate on the high volume short distance cargo and passenger routes from the main island of Viti Levu. They call at a few jetties with road connections over a relatively wide area. This has improved economic and social conditions in these places.

83. The RoRo ships were purchased from Japan. They are over 20 years old and were designed and constructed for use in the inland sea of Japan. Although they are operating over short distances this does involve open waters which can have severe storm conditions. These ships are temporarily very useful for high volume areas but not particularly suitable, safe, or robust for the Pacific; and of no value to the outer islands of Fiji which are now in an uncertain situation.

84. Elsewhere in the Pacific somewhat similar circumstances prevail. In Vanuata the government has the goal of spreading development to rural areas, but only the islands in proximity to Vila and Luganville have adequate services. In the outer islands a copra subsidy since 1985 has maintained some purchasing power. Small second hand local craft provide irregular services which are supplemented by island owned speedboats. In the Solomon Islands it is primarily an old ship owned by the government which operates from Honiara to the outer islands.

85. Papua-New Guinea has a fleet of 200-300 privately owned inter island vessels of considerable diversity and age. The government also provides ships for servicing remoter areas. Similarly, cocoa, coffee, palm oil and coconut oil stabilisation funds have been used to assist shortages of cash in some of the islands due to reduced raw material prices and rising costs of imports. These stabilisation funds are becoming exhausted, and the government is also gradually withdrawing from shipping.

Conclusions and recommendations

86. There are several major shipping developments in relation to the Pacific islands which have good development values and potentials. The intra-regional trunk services by the PFL and other companies are in this category. The tacit agreements between these services has reduced overtonnaging.

87. Linkages between the regional trunk line services and the small dispersed and low cargo generating islands still require attention. The alternatives include:

(a) feeder links from port towns by properly designed ships to small ports in outer areas which have been improved to accept mini-containers; or, in the more difficult places provision of small powered landing craft to islands for the collection of cargo from feeder ships, and other tasks.

(b) the evaluation of possibly two special multi-purpose vessels, combining engine and sail, dedicated to making a one month, or so, round trip to a sequence of small remote islands on a long ranging interterritorial basis.

88. At the inter island distributional level there is clearly a need for vessel types suitable for the geography and functions of the areas. In Micronesia 35with the vast distances involved it would appear appropriate to combine diesel engines and sail, reefer facilities and good passenger provisions. In Fiji an immediate advance would be furthering the policy of closer integration of modes. That is making more road connections from the Roro ferry services to other short sea crossing places, and the use of smaller barges for onward water connections. In the Lau islands, a direct service by ship to one or two central trading places could possibly integrate with a Lau distributional tug-and-barge system, or a Lau North/South ferry service from the central place.

89. In all territories of the Pacific Islands it would seem advisable for government owned shipping to try and give way to private owners as soon as possible.

90. In most places in the Pacific it seems less necessary now for outside experts to conduct many additional studies of inter island shipping. What is more important is the creation of competent local Task Forces, with prospects for a long term existence (and with overseas contributors where necessary) to evaluate, update and facilitate the implementation of the several valuable studies already made.

91. It is likely that it has been partly the lack of continuity of marine staff, as well as shortages of trained personnel, that has inhibited the on-going adaptation and implementation of several proposed schemes - including, for example, losing sight of the advantages of sail assistance in purchasing and retrofitting ships in this region. In this latter respect also it may be noted that training is still required. It was reported that the crew of a sail assisted vessel in the Pacific will continue to use the sails to obtain an extra knot during strong winds, whereas the purpose is to reduce the engine 36 revs and maintain cruising speed with the assistance of the wind - thus saving fuel.

92. On the port sector of the inter island trade, lack of attention to local knowledge and advice from inter island captains has resulted in the location of new jetties at difficult navigational sites. Again, local experienced marine staff have to be closely involved in the future as more such places are required in the outer islands in order to centralise cargo for collection and distribution.

93. There is excellent work on-going in the Pacific Territories to harmonise marine regulations. This needs continued support. In this regard also an increase in locally qualified maritime saftey surveyors is required. Attachments of staff to overseas marine authorities for training, and the funding of selected mariners to attend the Maritime Safety Administration courses at WMU would assist in improving the situation.

V. The islands of South East Asia

94. The island region of S E Asia lies between the Pacific and Indian Oceans. It comprises the great archipelagic states of Indonesia (pop. 160 m. and over 13,000 islands) and the Philippines (pop 60m. and over 7,000 islands). The shipping routes between the two oceans pass through the region via the Straits of Malacca, Sunda and Lombok. Singapore (pop 3m) is a principal hub, and to the north lies a wide distribution of small islands (some under disputed ownership) and the landmass of Asia.

95. The island territories are in proximity to, and parts of, the most rapidly developing centres of economic growth in the world. The wider region contains also the fastest growing shipping organisations, some of the biggest and most advanced ports, and the world's greatest shipbuilding industries. It is also now the place of origin of probably the majority of the world's merchant seamen.

96. Within the very dynamic region of S E Asia there are complex networks of highly advanced shipping services. There are also poor and very basic domestic operations and disadvantaged islands.

97. It is possible, allowing for many overlaps, to divide the various services into:-

(a) deep sea

(b) regional feeders

(c) short sea

(e) inter island

(a) Deep Sea Shipping

98. Shipping on the long distance international trades to and from S E Asia include a concentration of third generation container vessels of 3000 TEU's and above. These focus on the first order pivot ports of Hong Kong, Kaohsiung, Singapore and Busan. From these, and several next order pivot ports, feeder services operate to many other parts of the region. The main line container services include the Evergreen Line on round-the-world schedules eastwards and westwards, calling at pivot ports with feeders radiating north and south within the region. There are other vessels on the cross Pacific route which call at Kaohsiung and Keelung; and as another example, from Osaka to Kobe - Maji, Keelung, Kaohsiung, Manila, Singapore, Port Kelang then onwards. These main lines involve massive container ships that compete on the Europe and North American trades and are owned by the world's fastest growing companies - the majority of which belong to the region.

99. The pivot ports for the deep sea container ships have been chosen for, amongst other factors, generation of cargo in their own right, investment security, suitable labour, geographical location and port access. The terminals developed in these ports are amongst the most advanced and efficient in the world.

(b) Regional feeder services

100. A corollary to the concentration of main line hauls into a few highly sophisticated pivot ports has been the development of feeder services. Feeder ships of up to 1000 TEU range widely in networks and circular routes from

pivot port to national and international hinterlands. In some cases the costs involved in feeder services are absorbed by the main line company as a multi modal operator. It is therefore immaterial for many of the users of shipping services which combination of routes and ports are chosen for imports and exports. Several operators with major terminal investments at pivot ports offer low rates on feeders to maintain volume for their terminals and international services. There is also much slot chartering on several legs, and complex inter relationships between companies within consortia and conferences.

(c) Short Sea Trade

101. In addition to the feeder services which are region wide, and can extend over very long distances (e.g. Colombo feeds some S E Asian ports) there are local short sea ships running between the S E Asian countries, operated by about 60 medium and small companies.

102. This intra regional trade outside of transhipments is relatively modest. Between the ASEAN group of countries, for example, probably not more than 6-7m. tonnes p.a. Rice moves from Thailand to Indonesia; fertilisers and cement from Indonesia to Philippines; general cargo from Singapore to Philippines, and so on. The relatively low level of trade is attributed to production of similar materials and goods by the countries; also, perhaps the inadequacy of regular intra regional shipping; and the divergencies in shipping policies in relation to the promotion of national fleets by the member countries of ASEAN.

(d) Inter island shipping

103. The national inter island ships complement all of the services previously mentioned, but also enter into competition with several sectors of these. The domestic operations within this matrix of other shipping activities are, in fact, extremely complex, and the statistical basis relating to cargoes, routes and rates is not always good or reliable. Generalisations are difficult, this section therefore deals separately with the main domestic trades in Indonesia and the Philippines.

Indonesia

104. The archipelago of Indonesia contains over 160m. people and comprises 13,770 islands with about half inhabited. They extend in an E-W chain for some 3,000 miles. Within these are 70 designated ports and several hundred more small jetties in remote areas. These geographical characteristics render the provision of sea transport throughout the country both essential and difficult.

105. There are four quite well equipped ports in the main islands, namely Tanjong Priok, Surabaya, Belawan and Ujang Pandong. They have been designated the 'Gateway' ports for foreign shipping. Outside of these the berths and cargo handling facilities are not good. Even in the important timber trade from Kalimantan big vessels have to incur long delays by loading at several small places.

106. The traditional role of inter island vessels in Indonesia has been to distribute general cargoes, mainly in break bulk form, from Gateway ports and urban areas to the hundreds of places around the islands; and to collect mainly raw materials and produce for export (and the urban markets) from these ports, plus the provision of passenger services.

107. The inter island trade is conducted by at least seven classes of vessels. Statistics are uncertain but the types and numbers of craft would, for the mid 1980's appear to be as follows;-

	Possible no. of ships
Regular liner services (RLS, steel hulled 500-2000 DWT)	360 - 385
Local (small wooden, motor) 1000 - 2000	
Prahu (sail with auxiliary motor)	3500 - 10000
Ferries	250 -
Special bulk	2300 -
Barges	? -
Pioneer (government development)	35 -

The RLS vessels are operated by 33 private companies and by the government PT Pelni (about 35 per cent of RLS fleet). The statistics of cargoes carried by each category of vessel are somewhat contradictory. In 1981 for example these were reported as:-

RLS	3.0m. tonnes
Local	2.7m. "
Prahu	2.1m "
Ferries	1.3m "
Special bulk	1.0m "
Barges	3.0m "
Others	0.5m "
	13.6m

108. Dr David Hughes calculated from his surveys that Prahu vessels actually carried 7m tonnes during 1981. The Prahu is part of the traditional informal sector of inter island shipping which plays a vital role in the archipelago. The cargo and passenger carriage may have increased in all categories since 1981 but due to many changes in shipping the quantities are even more difficult to establish with accuracy.

109. A very important feature of the organisation of the inter island trade in Indonesia has, until recently, been the high degree of regulation by the government. This has included:-

(a) Reservation of inter island cargoes for Indonesian vessels

(b) Licensing of inter island routes from the bigger class of ships

(c) Direct calls at Indonesian ports by foreign vessels, i.e. not coming as feeders from pivot ports

(d) Calls by foreign vessels at Gateway ports only

(e) Government purchased foreign cargoes reserved for Indonesian ships.

110. The government of Indonesia became aware of the protracted time overseas ships were involved in cargo working, often moving between the four ports, and the time involved in inter island vessels operating over many ports and long distances to service the Gateways. They made a policy shift from, in effect, considering trade as the servant of shipping to the converse. Ports were consequently deregulated in 1985 and customs procedures simplified, so that 40 or so places were opened to foreign vessels - including feeder ships from Singapore. The result was an effective deregulation of shipping, although the Shipping Bill was not passed until 1988.

111. As a consequence of deregulation ships enroute to other areas of S E Asia from, for example, the Middle East call at Indonesian ports for containers. Many feeder vessels also now call daily from Singapore, especially to the four Gateway ports to collect containerised cargoes for topping-off the big vessels which are daily available at Singapore for many overseas destinations. Low freight rates on the feeders, quick despatch of cargo, and the economies of scale on the main line ships must have greatly reduced the transport element in the costs of Indonesia's overseas trade.

112. The inter island vessels are still no doubt carrying a significant volume of break bulk cargoes and several millions of passengers from, to, and between outer ports; although foreign vessels are giving competition in the higher volume routes, and foreign tramps are securing 'opportunity' cargoes at the expense of national vessels.

113. Further, with no longer any licensing of routes it is reported that smaller remoter areas are being by-passed as a result of deregulation.

114. It is too soon to assess the ultimate impact of the new open door policy of Indonesia on the composition and viability of the inter island fleet, and on the islands themselves, but it is a situation being closely watched by the Philippines.

The Philippines

115. As in Indonesia, most of the population of the Philippines is distributed in coastal towns and villages located over thousands of islands. They depend on inter island shipping economically, socially and politically.

116. In 1988 there were 15,000 inter island vessels, several of these were bareboat chartered from elsewhere in Asia. This fleet carried over 19m. tonnes of cargo and some 11.5m. passengers. Employment as seamen and related shore activities accounts for around 50,000 people.

117. Most of the inter island ships sailing out of main ports are in the range 800 to 1500 DWT. They were all purchased second hand, mainly in Japan, and their average age is somewhat above 20 years. In contrast to the Indonesian inter island fleet, the domestic regular liner ships of the Philippines all have container capability (some by local conversion). The ships on routes between smaller places are roro vessels, small conventional coasters, and barges.

118. In addition to the registered fleet there are, as in Indonesia, a considerable sector of small sailing craft, some with auxiliary engines. These are engaged in cargo and passenger carriage mainly in the southern islands. Several are dual purpose and are involved in transport and fishing, and in the illicit trade to Sabah and elsewhere.

119. There are 94 designated national ports in the Philippines and many hundreds more municipal and private ports, as well as jetties in rivers and inlets.

120. Cargoes moving inter island comprise foodstuffs, fuel and general outwards from port towns, and timber and agricultural produce inwards. There is a tramp sector which carries copra, grain, cement and sugar. Almost all vessels have passengers, and the 200 or so official passenger ferrries also carry cargo.

121. Ownership of the inter island fleet is in the hands of five major private companies plus many medium and small enterprises. Typical of one of

the bigger companies is Aboitez Shipping Corporation. The inter island sector of the company comprise 5 passenger-ferry vessels and 11 container ships with capabilities of 60 - 600 TEU's.

122. The majority of the liner companies belong to the 'Conference of Inter Island Shipowners'and Operators' (CISO) and their ships carry 80 to 90% of the inter island cargo and passengers. This trade is regulated by the government 'Maritime Industries Authority' ((MARINA). The primary purpose of regulations are to prevent overtonnaging, approve and franchise routes, control freight rates, and maintain adequate and viable private services to the islands.

123. Regulation has not prevented overtonnaging in the past, due partly to defects in statistical material; neither have freight rates been kept as low as was desired, partly due to MARINA approving rate levels to maintain viability in an overtonnaged trade. The higher rates have, in turn, attracted more entrants. The structure of inter island rates and fares has also presented problems. This structure was established in 1928 and it does not reflect current practices, ships or cargoes. The problem is currently under review in the Philippines.

124. Franchising of routes has met with more success in assisting the small and remote islands. MARINA provides a listing of all ships on each route and the requirements to serve specific places.

125. CISCO co-operates closely with MARINA and supports aspects of regulation. CISCO is critical of the inappropriate structure of rates and fares, and of unnecessary bureaucratic procedures.

126. In reply to a questionnaire for this report CISO noted;-

> "Fifteen agencies regulate inter island shipping operations. For every ship and every sailing, clearances have to be secured from no less than eight of these agencies."

127. Total deregulation would not seem to be favoured by CISO or MARINA but rather a closer partnership involving more self-regulation through CISO, and issued guidelines and continuous monitoring by MARINA.

Conclusions and Recommendations

128. There is clearly a basis for the greater use of the new intra South East Asia feeder services co-ordinated with national inter island shipping services. Such an integration could only evolve further in the context of a regional policy. The situation evolving in Indonesia is significant in this respect, but the pattern is not yet clear enough for conclusions to be drawn.

129. In the case of the Philippines, the basic problems and requirements are somewhat similar to domestic services elsewhere, they include:

(a) An ageing inter island fleet, and the difficulty of replacements with vessels designed and built for the trades due to shortage of capital and high interest rates

(b) Critically congested ports, especially at the inter island pier at Manila

(c) Many ship accidents and loss of life due to poor conditions of ships and overloading with passengers

(d) Inadequate navigational aids in outer areas

(e) Inability to effectively enforce safety regulations

(f) Overtonnaging. This matter has been a problem in the past, although since 1986 there have been increases in cargo volumes which have required more vessels, these have been bought second hand, and also chartered

(g) A relatively new problem for the Philippines inter island shipping is the difficulty of obtaining an adequate supply of trained officers and ratings. About 104,000 (1989) Filipino seafarers are serving on foreign flag ships and there are some 50 or so training establishments in the country, in addition to the prestigious Philippine Merchant Marine Academy. One main inter island company reported that three of its ships were idle due to an inability to obtain qualified engineers. Attention is clearly required in relation to this problem.

VI. Indian Ocean and Atlantic Islands

Indian Ocean

130. The distant island groups in the Indian Ocean comprise small scattered communities, including the Maldives, Seychelles, Comoros, and several isolated islands.

131. The Maldives is made up of 1200 islands and a population of about 183,000. Sea transport maintains connections with India, Sri Lanka and Singapore. This is carried out by the Government-owned company Maldive Shipping Ltd. Its fully containerised ship operates from Male, the capital, on a scheduled service to Singapore. Competition on this run is presented by two ships owned by Maldive businessmen. Several smaller foreign-going vessels are owned locally, and these along with vessels owned by Indian merchants operate between Male and South India and Colombo.

132. Male is the only port for imports. All but the smallest vessels require lighterage and cargo working is slow. From Male the domestic connections are by a variety of small craft which distribute goods to the distant islands. The small craft are owned by and operated from each individual island, and sometimes from each village on an island, to the capital.

133. There are probably well over 1000 boats in the islands. Several range from 20 to 100 DWT, they are built of wood and fitted with diesel engines. There are many other smaller open decked craft which use sails and outboard engines.

134. The inter island vessels all carry passengers to and from Male, although cargo is almost confined to return trips to the islands. Several are dual purpose craft engaged also in fishing.

135. On the export side of the outer island economies, fish is loaded on to specialised vessels at sea, and garments are picked up by small trading craft for direct delivery to Colombo.

136. An attempt to introduce an island ship operating from Male to deliver cargo/passengers and pick up products was a failure. The service, although it appeared more rational than the existing activities, was unable to displace the established pattern of trade.

137. The Seychelles (100 islands) is in a somewhat different situation. Whereas the main base of the Maldive economy is fishing, plus shipping interests, in the Seychelles it is tourism. The country has a population of around 66,000 and the annual arrival of tourists is also about that number. Shipping and air transport serving the islands have the opportunity of economic underpinning by tourist fares and other requirements.

Atlantic Islands

138. The remote islands of the Atlantic include St. Helena (pop. 6000), Ascension (pop. 1800) and Tristan da Cunha (pop. 300). During the 19th century they were the calling places for merchant ships and whalers obtaining water. Later they were coaling stations, especially for naval vessels. They engage now in fishing and have very little trade. All of them are British dependencies and a ship from the UK calls periodically.

139. The Cape Verde Islands comprise 10 islands and have a population of over 300,000. Fisheries and agriculture are the main economic activities but tourism is increasing. Cape Verde seamen also sail on foreign flag ships.

Conclusions

140. The consultant was unable to visit the places outlined in this Chapter. The only relevant comment relates therefore to the Maldives, derived from information obtained through the ADB.

141. The Maldive experience with respect to technological transfer is salutory. Clearly, it is often better to improve on what is already a going concern rather than introduce totally new concepts and types of vessels. The emphasis in the Maldives is now towards improving the life saving equipment, radios and maintenance of existing craft.

VII. Air communications

142. Most of the archipelagic groups and isolated islands now have air services. In Kiribati, with a population of 70,000, there is a weekly air service by Air Tungaru from Tarawa to 18 atolls of the Gilbert group. The planes carried 27,000 passengers during 1988 and 389 tonnes of cargo. By comparison, in that year about 9000 people travelled by inter island ship and some 10,000 tonnes of cargo were hauled.

143. The air service in Kiribati is subsidised. In 1989 the airline was applying for further assistance from government for repair requirements and anticipates the need for plane replacement soon. It is clear that there is a considerable expenditure by local people in Kiribati on air travel. The extent to which this reflects strong preferences for air or the inadequacy of passenger facilities and opportunities in inter island shipping is open to question.

144. There is obviously a place for both air and sea transport in serving the same islands. However, care in choice of routes and co-ordination of services, training of local people for all aspects of the service, and choice of aircraft (not obsolete second hand) are clear requirements, as is some wider regional inter territorial co-ordination in the provision of schedules.

Air alternatives for remote islands

145. The balance between air and sea depends on each specific situation, however, a few general points apply:

(a) Ships can serve directly only coastal and river locations, whereas air services are more penetrating. The significance of this point increases 51with the size and physical nature of the islands.

(b) In certain cases (such as, for example, the Friesian Islands in Northern Germany), tide levels and treacherous waters may determine the choice of planes as opposed to ships.

Physical and Human Aspects

146. Island airfield facilties frequently are not well developed or maintained. It is necessary to have trained pilots specifically to negotiate non-standard un-navigationally aided approach paths to short, grass/dirt landing strips. These conditions also dictate the aircraft types that can be used. In the Falkland Islands, for example, Islander aircraft are preferred to the normal Twin Otters because they are lighter and less prone to sinking into soggy landing strips.

147. Staff flexibility is needed with several people coping with the entire ground operation in multi tasks. Spare parts/maintenance availability can be a real problem, and could ultimately determine profit/loss levels of a service, (eg. Merpati Nusantra, Indonesia, have found that Twin Otter services are economical due to an internal maintenance facility, whereas their CASA 212's are not yet economical because great expense is incurred bringing in spares from outside).

Ownership

148. Remote island links are best provided by feeder services and interlining opportunities with the main national, regional and international services. In this context 'remote' services have a hidden value of being linked in to a

wider network of air routes. This increases remote service viability and provides infrastructure/equipment for the operation of the service, for example maintenance, staff etc. Cross subsidisation is a further possibility.

(a) Some shipping companies have taken stakes in/set up their own airlines to:

(i) diversify their interests

(ii) balance demand and schedules

(iii) counter competition from air services.

eg Hawaiian Airlines - was originally a steamship company.

Fresian Island Services- air services ultimately owned by the ferry company

Scilly Isles - ferry company has air services to counter competition and to make its own operation more economic by allowing it to withdraw passenger ferry services when demand levels are uneconomic, and replace them with a freight only service.

Role of Government

149. Air links to remote island communities are now seen by many governments as essential. Government perception of these services with regard to social, administrative and medical services determines whether or not state subsidies are given. It is often costs of the infrastructure which are government subsidised. For example, strip/runway maintenance, ground staff etc.

ANNEX

References

Walker, Karen 'Living up to the Promise', Flight International, 7.6.86, p 27-32

Summary

Article focusses on the development of the Indonesian aircraft industry and the man providing the inspiration, Dr B J Habibie, (Indonesian State Minister).

The article examines the projects, agreements and progress being made.

Useful Information

A section on the merits of air transport for Indonesia.

The Aircraft Industry has grown because of a healthy domestic market. This is a product of:

(a) size

(b) Geography

(c) Population Ditribution

i.e. 13,700 islands, spread over several thousand miles, with a large number of people who wish to travel.

P27: 'The size and geography of Indonesia and the number of people provides a captive market for the aircraft industry'.

The article points out that under the circumstances - flight is the cheapest form of passenger transport, and that there is no other option for maintaining communications other than ships. No figures for air/sea comparisons are given.

The article emphasises the advantages:-

Ships go only to the coastal areas, air services are more penetrating.

Aircraft are claimed to be the cheapest form of transport under specific conditions and are considered as an essential pre-requisite to the functioning of an economy.

Walker, Karen 'Flying to Paradise', Flight International 12.7.86. p.38-40

Article on the operations of Merpati Nusantara airlines of Indonesia. (Map of Services included).

Inter Island Services initially set up by the government in 1962 to maintain communications across the many islands.

The airline is owned and cross-subsidised by GARUDA, and links into GARUDAS wider network, providing interlining opportunities.

S61 Helicopter - 24/32 configuration takes 1/3rd flight time of the Twin Otter.

- has cold storage facilities to cope with the Daffodill crop.

Beech, Eric, 'Figas at Forty'. Flight International, 2/9 Jan 1988, p.30-31.

A review of the Falkland Islands Government Air Service (F.I.G.A.S.)

The vital important of the airlink to dispersed island communities is highlighted.

Specific details - Services operated by 3 islanders and takes in 41 air strips.

Role - primarily evacuation for hospital needs and provision of doctor service. Islanders book remaining places via HF radios. The route network varies daily depending on bookings. The airline organises a schedule sensitive to demand and broadcasts it and the passenger list on the morning radio.

Funding - A social service - it receives c50% subsidy from the Falkland Islands government.

Physical Conditions - weather unpredictable, difficult terrain, lack of navigational aids, sheep filled grass strips.

Point of interest - Islanders (BN2A's) are preferred to Twin Otters (DHT's) because of their lower weight - crucial for soggy ground operations where planes over a certain weight would sink!

Murphy, Gerald, 'Profits in the Tropics', The Avmark Aviation Economist, Sept. 1987. p. 19-20

Article on growth and development of Air Mauritius

Relevant Information:

Inter-island services are operated by 2 Twin Otters and an ATR42. The ATR42 was obtained with an 85% soft loan from France with a further loan being given for the establishment of an African region maintenance base.

CAA, 'Air Transport in the Scottish Highlands and Islands', CAA London 1974

Dated, but outlines basic principles and characteristics associated with remote island services.

Interesting parallels and comparisons drawn with 'remote' air services in the US, France and Netherlands with paricular reference to subsidy justification.

Lowe, Janice, 'Alaskan Chain Link', Flight International 4.7.87. p.19-22.

Article detailing the operations of Reeve Aleution Airways to the Islands off the South West coast of Alaska.

Interesting point - capabilities of the L188 Electra aircraft - short take off, landing and high wind capabilities.
Seasonality of demand.

Government help was given for the purchase of new aircraft for new routes. Airstrips were built wherever there was seen to be a market.

Routes

1. Commercial

2. Pioneer - not economically viable - government provides funding on the grounds that services are vital to communications in the island regions.

Aircraft

Twin Otters - These are covering their costs (due to home maintenance) CASA 212's are not, (due to the spares situation where they have to be bought from outside).

Physical Conditions

600-700 in unmarked grass strips, no navigational aids. These require well trained pilot for specific conditions.

Hopkins, Harry 'So near and yet so far' Flight International, 3.10.87 p.42.43

Summary

Report on the Scilly islands air services and the operational characteristics that have evolved to provide air links.

Air services are considered to have played an important part in the welfare of the Scillies and their continuation is seen as necessity by the islanders.

Local Geography

5 islands - small - biggest 3 x 2 miles. Population 2,000

Epitome of "remoteness, small scale and scatter" (p.42)

Traffic - seasonal - tourist related (80% of isles income). Less than 10% are local residents or business trips, of which 90% are by helicopters.

Operational Characteristics - longest r/w 570m.

Sea v Air modal split 60:40.

Passengers in 6 months in summer 1986: Ferry 125,000. DHT (twin otters) and Islanders 10,000, S61's (Helicopters) 67,000.

2 hours ferry service provides the islands mainstay transport for goods, materials and local agricultural produce.

Islander aircraft are known as the "Skybus" and are owned by the Steamship Co.

(a) as a diversification from Ferry based interest

(b) to counter competition from air and to allow the Ferry to be laid up at low season when passenger levels become uneconomic - enabling a freight only coaster to be put on the service.

p20 'Most of the freight .... goes by sea.... but people travel by air ' (Dick Reeve).

Black Robin, "Friesian Island Hopper', Flight International, 22 August 1987, p.18-20.

Air service operations using islanders in North Germany's short sector services in the Friesian islands.

Interesting point - Shipping company owns and cross subsidises airline.

Lyons Paul, New Fleet for old air bridge', Flight International, 17 January 1987, p.36-37.

Article looking at suitability and capabilities both physically (STOL) and economically of Electras operating in Brazel.

Middleton, Peter, 'Peak Travel with Mount Cook', Flight International, 2.3.85 p.29-32.

Article focussing on New Zealand airline operating in physically difficult conditions. Point of interest - the airline is an integral part of a vertically integrated holiday company.

Data Base

1. January edition of the 'ABC World Airways Guide' (2 volumes)

This is a timetable of all the scheduled air services in the world.

Information obtainable includes:

(a) flight timings

(b) aircraft types

(c) flight frequencies (days of week and timing)

(d) operating airline (flight number)

(e) air routes from a named place

(f) list of airlines and addresses of head offices

2. Flight International's yearly Commuter Airliner Directory.

Latest appeared in 'Flight' 29.4.89.

Gives information on:-

(a) aircraft types. Includes performance statistics; (range v payload graphs), configuration possibilities) approximate cost and brief comment on each aircraft.

AIRCRAFT DATA - From the Flight International Commuter Directory 29 April, 1989 p.38 - 67

Aircraft Type	Max No. Seats	Max Payload(lb) Range (nm) at economical cruise	Full Tanks Payload (lb) (Range at long range cruise (nm)
BN2A Islander	9	2043 209	1526 675
BN2T	9	2454 141	1340 747
Cessna 208	14 10 in US	3735 111	1711 1235
Do 228	19	4482 672	4156 1638
Twin Otter	20	4560 150	2477 870
Casa 212 - 300 SRS	26	5004 346	2800 1014
Shorts 330 - 200 SRS	30	5850 473	3718 1006
Shorts 360 - 300 SRS	39	7020 580	6015 860
Dash 8-300	56	10364 494	5192 1031
CASA-IPTN	45	9261 416	3797 2530
ATR 42-300	50	10835 520	4239 2500
Dash 7-150	54	11380 1070	9225 1550
Foker 50	50	13924 795	9160 1866
Bae 748	58	14027 785	11590 1280
Bae ATP	64	14830 851	8330 2368

Other data includes aifield performance figures, cross-sections and dimensions.

Appendix

Principal Organisations Consulted

(1) Caribbean

Caribbean Line Ltd., Port of Spain.
IMO Caribbean region " " "
Maritime Services Ltd." " "
Point Lisas Terminals Ltd. (Plipdico).
Port Authority of Trinidad and Tobago.
Shipowners' Association.
UN ECLAC/CEPAL Subregional Headquarters, Port of Spain.
West Indies Shipping Corporation.

(2) Pacific

Fiji Ports Authority, Suva.
Ministry of External Relations and Trade, Wellington, N.Z.
Ministry of Transport, Wellington, N.Z.
Pacific Forum Line, Auckland, N.Z.
Port of Wellington Regional Council, Wellington, N.Z.
South Pacific Bureau for Economic Co-operation, and Forum Secretariat. Suva Fiji.
Sofrana Unilines N.Z. Ltd., Auckland, N.Z.

(3) South East Asia

Aboitiz Shipping Corporation, Manila.
Asian Development Bank, Manila.
Conference of Inter-island Shipowners and Operators (CISO), Manila.
ESCAP (UN) Transport and Communications Division, Bangkok.
Maritime Industry Authority (MARINA), Manila.
Philippine Merchant Marine Academy.
Port of Manila.

(4) By Correspondence

Marine Division, Papua/New Guinea.
Directorate General of Sea Communications, Indonesia.

Principal Documents Consulted

(1) Caribbean

Eller, D.Florida Entrepreneurs Sail on Containerisation International (Sept. 1989)
ECLA (UN)Caribbean Short Sea Transport, Its Role, Challenge and Opportunities. (LC/R (May, 1985)
Plan of Action for Small Island Developing Countries UN Caribbean Development and Co-operation Committee (LC/CAR/G295) (1988)
Rial, W.B.The Role of Maritime Safety and Related Services in Maritime Transport. IMO Caribbean Region (1987)

(2) Pacific

Proctor, A.S. Transport and Agricultural Developments, in Ward, G. and Proctor. A. South Pacific Agriculture Choice and Constraints (1980)

South Pacific Maritime Development Plans. Forum Secretariat, Suva (1989)
South Pacific Maritime Developments Newsletter (1987-89)
Touche Ross & Co., Regional Transport Study of the South Pacific (1984)

(3) South East Asia

Asian Development Bank Regional Conference on Sail-Motor Propulsion (1985)
CISCO Listing of Approved and Proposed Routes (1989)
CISCO Memo of Issues Affecting the Inter-island Shipping Industry (Unpub. January 1990)
ESCAP Regional Shipping Networks (ASEAN) Bangkok (May 1985)
Hughes, D. The Prahu and Unrecorded Inter-island Trade Bulletin of Indonesian Economic Studies Vol 22 (1986)
Hideo, Yamada Asian Liner Shipping Market Japan Maritime Research Institute (1988)
International Civil Aviation Organisation Mid Term Review of Transport and Communications Decade for Asia and Pacific 1985-94.

AIR TRANSPORT

I am grateful for the assistance of Mr Ian Humphreys (University of Wales College of Cardiff) in the preparation of this section.

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THE PROBLEMS OF INTER-ISLAND TRANSPORT

by A.D. Couper

Corrigendum

Pages i and 8

Section III: For The islands of the Pacific read The islands of the Caribbean

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